

# Conservation and Research of Sea Turtles in the Hawaiian Islands: An Overview

George Balazs

## PRESENTATION

This workshop is the largest sea turtle event that NOAA, the Fishery Council, or even our agency, the National Marine Fisheries Service, has ever held in Hawaii. I congratulate the Council for bringing all these wonderful folks together to talk sea turtles and try to come up with answers to some serious questions. I look forward to making new friends and new colleagues, and I hope we will all take advantage of this opportunity.

This presentation will be an overview of the state of affairs of sea turtles in the Hawaii region and several of the other U.S. Pacific territories. Also included are some of the techniques and tools that we've used successfully here in Hawaii, and elsewhere in the Pacific, to promote research for a better understanding of regional conservation efforts of Pacific sea turtles.

Throughout this talk and in the coming days I want to emphasize what I feel are some of the most important "take-home points" from someone that has been trying to contribute for 33 years in Hawaii. These words of advice are – First, to take advantage of the opportunities to foster collaboration. We can do this here. You are here. You are meeting new people. Take advantage of it. Collaborate. Make new friends. Make new partnerships. Come up with new coalitions. This is a wonderful opportunity and I will be out there doing the best I can to do that. Second, constantly keep in mind that there are certain biological constraints of the animals we are dealing with. The green turtles in Hawaii that were hatched in 1979 when I gave a sea turtle status review presentation at the World Conference on Sea Turtle Conservation (Balazs, 1982) are just now thinking about becoming sexually mature. Several decades are needed for green turtles to reach adulthood. We cannot change that constraint, unless we're going to go out and put more protein in their diets and feed them in the wild (an unrealistic and unlikely proposition).

My third take-home message is - To draw upon the previously published literature. There is a lot out there and the internet can be a wonderful access for it. Do not reinvent the wheel, draw upon the information that is already present. There exists a tremendous body of journal articles, and published and unpublished reports.

And last, but not least, as a sea turtle scientist at the Honolulu Laboratory of the National Marine Fisheries Service, along with many of my colleagues at the Honolulu Laboratory, we stand ready to assist and collaborate and be a source of inspiration and advice to anyone that would like to come to us in any manner that is reasonable or appropriate for us to aid you in your efforts in your particular part of the Pacific region.

At the SPREP meeting in 1996 for the Regional Conservation of Sea Turtles held in Apia, Samoa, a wonderful vision statement was crafted by the participants, as follows:

We see a future where generations of Pacific Island people will have choices about how they use and interact with sea turtles. This dream will come true if we take action now to ensure that sea turtle populations recover to become healthy, robust and stable. Sea turtles will be fulfilling their ecological role and be harvested by Pacific Islander people on a sustainable basis to meet their cultural, economic and nutritional needs.

Obviously, we need to have sea turtles in order for them to be important in the culture of Pacific Island people, or to anyone else in the world. Without turtles, that part of the culture is gone. So the first step is the animals, and the biological constraints that those animals have that inherently limit our actions on how they can be recovered.

## TRENDS

### Green Turtles

The status of the honu (green turtle) in Hawaii has improved, but continues to be threatened by a disease whose impacts are yet to be fully understood. The genetic source of the Johnston Island population is from the Hawaiian stock, and is stable with probable improvement. The Midway population has improved. There are more turtles at Midway (since first studied in 1975) with larger size classes present. There are very few turtles at Howland, probably as many now as in the past. There is no detectable change at Baker, and no change at Jarvis.

The coastal waters of the Main Hawaiian Islands represent foraging and resting habitat [e.g. Kilauea Point, Kaneohe Bay, Punaluu Bay]. Nesting takes place at French Frigate Shoals, Northwestern Hawaiian Islands which is located about the midpoint of the Hawaiian chain. Very little green turtle nesting occurs anywhere in the Main Hawaiian Islands (MHI). Anywhere from 90 to 95% of all nesting takes place at French Frigate Shoals and 50% of that nesting takes place on a 12-acre island known as East Island (Fig. 1). Monitoring started in 1973 on East Island, and over the years data collected has been standardized to quantify the level of annual nesting. As with many other field projects in the Pacific, a whole manner of measurements and taggings are done at French Frigate Shoals – which is now approaching its 30th season of research.

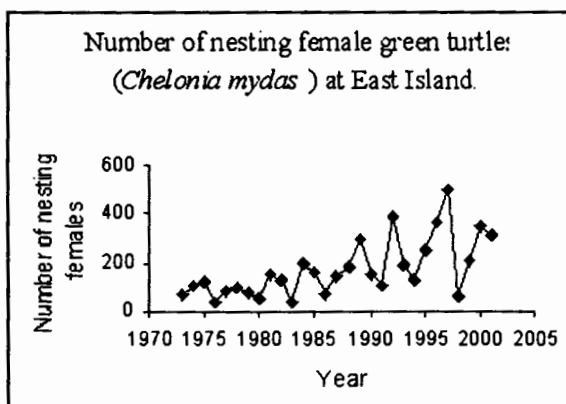


Figure 1. Green turtle trends at East Island, accounting for about 55% of all nesting at French Frigate Shoals (NMFS, Honolulu Laboratory).

### Hawksbill Turtles

Hawksbills do not occur in the Northwestern Hawaiian Islands and do not migrate very far within Hawaii. Satellite tracking data show that hawksbills here are mainly coastal and do not traverse great distances. They reside and nest in the Main Hawaiian Islands. The population status has improved, but is still very low in numbers with only a few dozen nesters each year.

## THREATS

Entanglement by both active and discarded fishing line is a problem, as may be the predation by large tiger sharks. The tumor disease (fibropapilloma) is still a research battle to understand. Not just for Hawaii, but to develop the capacity to respond anywhere in the Pacific with some substantive knowledge and expertise, if and when outbreaks of this disease occur in American Samoa, Tahiti, Fiji or anywhere else.

## MIGRATIONS

Satellite tracking data show that the Main Hawaiian Islands are resident foraging areas for all sizes of green turtles, except during the pelagic phase. The pelagic phase cuts off for green turtles at a minimum of 35 cm, and typically between 40 to 45 cm straight carapace length. For example, satellite telemetry data of one of 12 turtles tracked from East Island, French Frigate Shoals, shows a route to King's Landing near Hilo, on the island of Hawaii, a distance of over 700 miles.

Other tracking data in the Pacific show Rose Atoll (American Samoa) nesting green turtles migrating to Fiji (Fig. 2). Eight of the nine satellite transmitted turtles went to Fiji. It would appear that a lot of turtles throughout the Pacific islands go to Fiji to forage. Metal flipper tags put on in French Polynesia show that turtles fan out across the Pacific and that Fiji foraging pastures are one of the major places for tag recoveries.

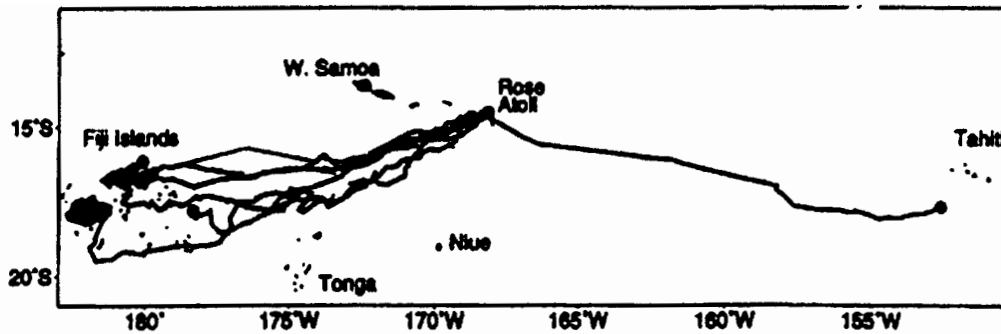


Figure 2. Migration route of satellite transmitted green sea turtles from Rose Atoll, American Samoa (NMFS, Honolulu Laboratory).

### INTERESTING INFORMATION

Along with the increase at the nesting grounds, the behavioral changes seen in the Hawaiian green turtle population are an amazing phenomenon. At some sites turtles have become fearless of people. In the early 1970s if one saw a turtle in the water you saw its back-side as it was screaming away from you in fear. This is no longer the case.

What do we attribute this to? I attribute it to the most powerful tool that we've had in sea turtle conservation in Hawaii and the United States, and that is the Endangered Species Act. "You protect them. You give them enough time. You leave them alone and they will restore, slowly but surely." The National Marine Fisheries Service is guided by various documents. For example, the recovery plans formed by the collaborative Fish and Wildlife Service, State of Hawaii, and National Marine Fisheries Service sea turtle recovery team. There are plans for six species used as guiding documents for research and recovery.

In addition, we are blessed in Hawaii with the isolation of our sea turtle populations, - that is, that the Hawaiian Islands are situated in the middle of the North Central Pacific. Except for the pelagic phase, our turtles do not cut across other boundaries of nations where complications in management can and do occur. This is a special circumstance.

With the greater number of turtles and behavioral changes, ecotourism (watching turtles, seeing turtles), has become far more common and prominent (for example, see <<http://www.turtles.org>>). This is a positive economic contribution that does not involve eating or selling turtles to restaurants or tourists. Turtles are also recognized in the Hawaiian culture where many adorn themselves with turtle art (tattoos), and are incorporated in traditional dance (hula) performances, and of course historically a food for feasts. The more people think about turtles, and the more we learn about them for management purposes, the more turtles become alive in the culture of the people.

### LITERATURE CITED

Balazs, G. H. 1982. Status of sea turtles in the central Pacific. In: K. A. Bjorndal (ed.), *Biology and Conservation of Sea Turtles*, p. 243-252. Smithsonian Inst. Press.

The following book is recommended as an excellent source of information for anyone interested in pursuing research and management efforts on behalf of sea turtles in the Pacific Islands:

K. L. Eckert, K. A. Bjorndal, F. A. Abreu-Grobois, and M. Donnelly (eds.), *Research and Management Techniques for the Conservation of Sea Turtles*. IUCN/SSC Marine Turtle Specialist Group Publication No. 4, 235 pp.

PROCEEDINGS OF THE



# WESTERN PACIFIC SEA TURTLE

*Cooperative Research & Management Workshop*

A forum to disseminate information and to promote greater regional collaboration for research and management of Pacific sea turtle populations.

**February 5-8, 2002**

Coordinated and edited by Irene Kinan

---

Sponsored by



WESTERN PACIFIC  
REGIONAL FISHERY  
MANAGEMENT COUNCIL

1164 Bishop Street, Suite 1400  
Honolulu, Hawaii, 96813, USA

[www.wpcouncil.org](http://www.wpcouncil.org)

## Document Citation

Kinan, I. (editor). 2002. Proceedings of the Western Pacific Sea Turtle Cooperative Research and Management Workshop. February 5–8, 2002, Honolulu, Hawaii, USA. Honolulu, HI: Western Pacific Regional Fishery Management Council. 300 pgs.

## Editors' Note

The papers presented at the workshop and consequently contained in these proceedings have been edited for consistency in format; with only minor changes to language, syntax, and punctuation. The authors' bibliographic, abbreviation and writing styles, however, have generally been retained. Several presenters did not submit a written paper, or submitted only an abstract to the meeting. In these instances, a summary was produced from transcripts of their presentations, with abstracts included when available. The opinions of the authors do not necessarily reflect those of the Western Pacific Regional Fishery Management Council or of other meeting sponsors.

## Workshop Sponsors



University of Hawaii  
Pelagic Fisheries Research Program